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Examiner: Ricky D. Shafer
Group Art Unit: 2872

REMARKS/ARGUMENTS

Claims 3-6, 8, 12-14, and 26 are pending in this application, and stand rejected. Claims 14 and 26 have been amended in this paper.

The drawings stand objected to, and have been amended in this paper in response to the objections.

Applicant believes the amendments made herein add no new matter. Any amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based on prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to be attached thereto.

Reconsideration and reexamination of the application is respectfully requested in view of the amendments and the following remarks.

Objections to the Drawings

In the Amendment and Response to Office Action filed February 19, 2007, amended drawings were submitted in response to objections raised in the Office action mailed October 19, 2006. These drawing amendments corrected errors or omissions of a generally typographic nature.

In reply to the February 19, 2007, Amendment and Response, the Advisory Action mailed March 2, 2007, asserted that the proposed amendments would not be entered. However, the Advisory Action addressed only claim 26, which was amended in the February 19, 2007, Amendment and Response, and did not address the amended drawings. Applicants are uncertain whether the amended drawings have been accepted. Thus, Applicants are resubmitting the amended drawings herewith.

The drawings stand objected to on various grounds. The objection is traversed.

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The Examiner asserts that element 84, shown in Figure 12, does not properly point to the compression spring. Figure 12 has been amended so that element 84 points to the compression spring.

The Examiner asserts that element 128 shown in Figure 16 fails to include a lead line. Figure 16 has been amended to show a lead line from element 128 to the appropriate structural element.

The Examiner asserts that element 132 shown in Figure 16 does not properly point to the spring channel. The lead lines from element 132 have been redrawn in Figure 16 to more clearly point to the spring channel.

The Examiner asserts that reference numeral 174, shown in Figure 18, lacks a proper written description. Figure 18 has been amended to change reference numeral 174 to reference numeral 142, which has a proper written description. Moreover, reference numeral 168 has been changed to reference numeral 169 to correct a typographic error.

Applicants believe the amendments to the drawings resolve the asserted objections. Applicants request that the objections be withdrawn and the drawings be accepted.

Rejection under 35 U.S.C. §112, ¶1

In the Office action mailed October 19, 2006, claims 3-6, 8, 12-14, and 26 stood rejected under 35 U.S.C. §112, ¶1, as allegedly failing to comply with the written description requirement. The rejection was traversed in Applicants' February 19, 2007, Amendment and Response, and claim 26 was amended to remove the grounds supporting the rejection. However, the Examiner refused to enter the amendments in the March 2, 2007, Advisory Action, notwithstanding Applicants' amendments fully resolve the rejection.

In the March 2, 2007, Advisory Action, the Examiner asserts:

"Claim 26, as amended, raises new issues in regards to the scope that would

require further consideration/search. In addition, applicant should take notice that any attempt to change/shift from the originally claimed invention (an invention that includes a clutch and the associated details thereof) to a different invention will not be examined (See 37 CFR 1.142(b) and MPEP 821.03) nor would such a shift in invention be considered proper for a RCE (Note: the filing of an improper RCE will not operate to toll the running of any time period set in the previous Office action for reply to avoid abandonment of the application. See MPEP § 706.07(h))."

The Examiner's refusal to enter the amendments, and the Examiner's assertions in support thereof, are traversed.

The Examiner fails to identify the "new issues in regards to the scope that would require further consideration/search." Thus, the Examiner's refusal to enter the amendments is arbitrary and capricious, and contrary to law, and Applicants are prejudiced in their ability to completely and adequately respond to the Examiner's action. Nevertheless, the Examiner appears to raise an issue in the Advisory Action relating to the assertion that the originally claimed invention is a clutch. This is taken by Applicants for purposes of this Amendment and Response as meaning that the Examiner's refusal to enter the amendments is based on the absence of a reference to a clutch in amended claim 26. Thus, in addition to the amendments presented in the February 19, 2007, Amendment and Response, claim 26 has been further amended to call for a slip clutch, of which the ball and socket called for in canceled claims 2, 7, and pending claim 26, are elements.

Full support for the ball and socket comprising a slip clutch is provided in the specification. The Field of the Invention states that "the invention relates to a slip clutch applied between each jack screw and the mirror carrier to allow slip between these components when the mirror has reached the end of travel but a drive motor continues to run." *Application, para. [0002], ln. 4-7.* The Description of Embodiments of the Invention describes a mirror system comprising a reflective element 24 mounted to a glass case 26 and a single motor tilt actuator

assembly 28. *Application, para. [0035], ln. 1-10.* The tilt actuator assembly 28 comprises a pair of spaced-apart, generally parallel jackscrews 46, *Application, para. [0036], ln. 1-5*, each of which is threadably attached to a drive gear 44 so that the jackscrew 46 will translate axially inwardly (i.e. retract) and outwardly (i.e. extend) of the tilt actuator assembly 28 when the drive gear 44 is rotated. *Application, para. [0036], ln. 10-14.*

The jackscrews 46 comprise a cylindrical shaft 50 transitioning to a narrow neck 52, to which is attached a spherical head 54 comprising a truncated spherical surface 58. *Application, para. [0037], ln. 1-5.* The glass case 26 comprises an inner surface 64 from which a pair of sockets 66 extend for cooperative register with the jackscrews 56. Each socket 66 comprises at least two arcuate walls 68 defining a generally spherical inner surface 71. *Application, para. [0038], ln. 1-14.*

The head 54 of each jackscrew 46 is inserted into a socket 66 in a "ball and socket" configuration so that the spherical surface 58 is in slidable register with the spherical inner surface 71. *Application, para. [0039], ln. 1-4.* A compression element comprising a compression spring 86 is snap fit circumferentially around the arcuate walls 68 to provide a radially-inward compressive force to the arcuate walls 68. *Application, para. [0039], ln. 6-9.* The compression spring 86, the arcuate walls 68, and the head 54 are cooperatively adapted so that friction between the spherical inner surface 71 and the spherical surface 58 will prevent the jackscrews 46 from rotating relative to the sockets 66 so that the jackscrews 46 will translate coaxially with the rotation of the drive gears 44 during a normal range of travel. However, the compression spring 86, the arcuate walls 68, and the head 54 are also cooperatively adapted so that, when the jackscrews 46 reach the inner or outer limits of their movement, the friction between the spherical inner surface 71 and the spherical surface 58 will be overcome and the head 54 will rotate within the head cavity 80. *Application, para. [0039], ln. 11-23.*

The Description summarizes the invention by pointing out that "The novel jackscrew slip clutch illustrated and described herein moves the slip clutch mechanism from the drive

gear/jackscrew interface to the jackscrew/glass case interface.” *Application, para. [0055], ln. 1-3.* Thus, the specification clearly identifies the “ball and socket” assembly as a slip clutch.

A “clutch” is defined as "A coupling for throwing the working parts into or out of action at will." *The Oxford English Dictionary, 2nd Ed., Clarendon Press (1991).* A “slip clutch” is defined as “A friction clutch that will slip when the torque is too great.” *WordNet 3.0, Princeton University (2006).* It is clear from both definitions, and the Description, that the "ball and socket" assembly comprises a slip clutch. Thus, there is sufficient support in the specification for the inclusion of the slip clutch in claim 26.

Applicants also submit that, as set forth in the February 19, 2007, Amendment and Response, the amendments to claim 26 fully resolve the rejection under 35 U.S.C. §112, ¶1, of claims 3-6, 8, 12-14, and 26 set forth in the October 19, 2006, Office action. Applicants’ discussion is repeated herein, as follows.

The Examiner asserts that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. The Examiner asserts that the specification, as originally filed, does not provide support for "the ball and socket allows the actuator to slip and prevent damage thereto," as recited in claim 26, lines 11-12. The Examiner also asserts that the specification, as originally filed, does not provide support for "the compression member...apply a compression force on the ball for operation of the actuator," as recited in claim 26, lines 7-8. Finally, the Examiner asserts that the specification, as originally filed, does not provide support for "in the second mode the actuator is placed in an impeded mode of operation," as recited in claim 26, lines 10-11. The Examiner asserts that the clutch is the only element disclosed which is capable of the above-mentioned structural and operational details, referring to paragraph [0006] of the specification, which has been deleted from claim 26.

Claim 26 has been amended to call for an actuator assembly, rather than an actuator. As set forth in paragraph [0034] of the specification, as originally filed, the actuator assembly comprises one or more jackscrews which operate within a preselected linear range of travel to tilt the reflective element. Unrestricted operation of the actuator assembly resulting in movement of the jackscrew within the preselected linear range of travel is referred to herein as a "normal mode of operation." Restricted operation of the actuator assembly, for example, after the jackscrew is moved to the limit of the preselected linear range of travel, or in the situation in which the jackscrew is prevented from movement within the linear range of travel due, for example, to an obstruction of the movement of the reflective element, is referred to herein as an "impeded mode of operation."

Amended claim 26 calls for the ball and socket to allow the actuator assembly to slip, and does not call for prevention of damage to the actuator. The specification provides support for this limitation. Paragraph [0039] states "However, the compression spring 86, the arcuate walls 68, and the head 54 are also cooperatively adapted so that when the jackscrews 46 reach the inner or outer limits of their movement, the friction between the spherical inner surface 71 and the spherical surface 58 will be overcome and the head 54 will rotate within the head cavity 80." Paragraph [0054] states "However, when the mirror system is placed in an impeded mode of operation..., the head 54 will then turn within the socket 66...." The ball is part of the jackscrew. The jackscrew is part of the actuator assembly. The referenced paragraphs indicate that, in an impeded mode of operation, the actuator assembly is allowed to slip by the interaction of the ball and socket. Thus, the specification provides support for this limitation of claim 26.

Amended claim 26 calls for a compression element mounted around the socket having the ball cradled therein to apply a compression force on the ball for operation of the actuator assembly in a first mode. The specification provides support for this limitation. Paragraph [0037] states "In a first embodiment illustrated in Figures 9 and 10, a compression element comprising a compression spring 86 is snapfit circumferentially around the arcuate walls 68 and is adapted for providing a radially inward compressive force to the arcuate walls 68. ... The

compression spring 86, the arcuate walls 68, and the head 54 are cooperatively adapted so that friction between the spherical inner surface 71 and the spherical surface 58 will prevent the jackscrews 46 from rotating relative to the sockets 66 so that the jackscrews 46 will translate coaxially with the rotation of the drive gears 44 during a normal range of travel of the jackscrews 46 between the retracted and extended positions.... The frictional force between this vertical inner surface 71 and the spherical surface 58 can be selectively adjusted by adjusting the compressive force exerted by the compression spring 86."

It is clear that the compression element provides a compressive force on the ball through the arcuate walls 68 for operation of the actuator assembly in a first mode. The compression element applies a radially inward compressive force to the arcuate walls 68. The arcuate walls 68 are in frictional contact with the ball. Thus, compression applied to the arcuate walls 68 will urge the arcuate walls 68 into contact with the ball during a normal range of travel, i.e. the first mode of operation. The specification provides support for this limitation of claim 26.

Amended claim 26 also calls for the actuator assembly to be placed in an impeded mode of operation in the second mode. As discussed above, unrestricted operation of the actuator assembly is referred to as a "normal mode of operation." Restricted operation of the actuator assembly is referred to as an "impeded mode of operation." Thus, there are two modes of operation. Claim 26 calls for the normal mode of operation to be a first mode, and the impeded mode of operation to be a second mode. This is fully supported by the specification, particularly the paragraphs cited above. Thus, the specification provides support for this limitation of claim 26.

Claims 3-6, 8, and 12-14 depend from amended claim 26 and, for the same reasons, are supported by the specification. Applicants request withdrawal of the rejection, and the allowance of claims 3-6, 8, 12-14, and 26.

It is respectfully submitted that all of the claims in the application are allowable over the prior art of record. Nevertheless, Applicants are filing a Request for Continued Examination

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contemporaneously herewith pursuant to 37 C.F.R. §1.114. Prompt notification of allowability is respectfully requested.

If there are any remaining issues which the Examiner believes may be resolved in an interview, the Examiner is respectfully invited to contact the undersigned.

Respectfully submitted,

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Dated: April 2, 2007

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